

Claims

What is claimed is:

1. An industrial controller system comprising:
a file system residing in a program memory of an industrial controller, the file system having a plurality of file system services; and
an execution engine residing in the program memory of the industrial controller, the execution engine adapted to interpret code from an industrial control program, the industrial control program including at least one instruction utilizing one or more of the plurality of file system services.
2. The system of claim 1, the file system and the execution engine being adapted to load user defined routine files upon loading an industrial control program having one or more header instructions for including a user defined routine file, the included user defined routine file being loaded into the same program space as the industrial control program.
3. The system of claim 2, the user defined routine files being stored at a memory device separate from the program memory.
4. The system of claim 3, the memory device being located at one of the industrial controller and a remote location from the industrial controller.
5. The system of claim 1, the file system and the execution engine being adapted to load one or more recipe files into an executing industrial control program upon executing a load instruction in an industrial control program.
6. The system of claim 5, the recipe files being stored at a memory device separate from the program memory.

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7. The system of claim 6, the memory device being located at one of the industrial controller and a remote location from the industrial controller.

8. The system of claim 1, the file system and the execution engine being adapted to load an operating system file into program memory, the operating system file corresponding to the development of the industrial control program.

9. The system of claim 8, the operating system file and the industrial control program file being saved concurrently during the development of the industrial control program wherein the industrial control program and the operating system file are transferred to the industrial controller together.

10. The system of claim 1, the file system and the execution engine being adapted to log measured data into a file upon executing an instruction in an industrial control program to record the measured data.

11. The system of claim 10, the file system and the execution engine being adapted to retrieve measured data from a file upon executing an instruction in an industrial control program to load the measured data.

12. The system of claim 10, the measured data file being stored at a memory device separate from the program memory.

13. The system of claim 12, the memory device being located at one of the industrial controller and a remote location from the industrial controller.

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14. The system of claim 1, the file system and the execution engine being adapted to log trend data into a file upon executing an instruction in an industrial control program to record the trend data.

15. The system of claim 14, the file system and the execution engine being adapted to retrieve trend data from a file upon executing an instruction in an industrial control program to load the trend data.

16. The system of claim 14, the trend data file being stored at a memory device separate from the program memory.

17. The system of claim 16, the memory device being located at one of the industrial controller and a remote location from the industrial controller.

18. The system of claim 1, the file system and the execution engine being adapted to receive a communication command for selecting a running industrial control program from amongst a plurality of industrial control programs residing on the industrial controller.

19. The system of claim 18, the communication command being transmitted from a remote location over the Internet.

20. The system of claim 1, the industrial control program being a ladder logic program.

21. An editor for developing ladder logic programs for controlling the operation of an industrial controller system, the editor comprising:

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a first instruction adapted to employ a file system residing on an industrial controller to log data to a file; and

a second instruction adapted to employ the file system to retrieve data from a file.

22. The editor of claim 21, the data logged to a file and retrieved from a file being measured data.

23. The editor of claim 21, the data logged to a file and retrieved from a file being trend data.

24. The editor of claim 21, the data retrieved from a file being a recipe file.

25. The editor of claim 21, the data retrieved from a file being a user defined routine file.

26. The editor of claim 21, further comprising a plurality of additional instructions for utilizing file system services of the file system.

27. A method for providing a an industrial controller with the functionality associated with utilizing a file system residing on the industrial controller, the method comprising:

developing a file system and loading the file system on an industrial controller, the file system having a plurality of file system services; and

developing an execution engine that interprets instructions of an industrial control program that utilizes at least one of the plurality of file system services.

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28. The method of claim 27, further comprising developing an industrial control program including at least one instruction that utilizes one or more file system services and downloading the industrial control program to the industrial controller.

29. The method of claim 27, further comprising selecting a running program utilizing the file system from one or more industrial control programs residing on the industrial controller.

30. The method of claim 27, further comprising developing an editor for creating industrial control programs that include at least one instruction that utilizes at least one of the plurality of file system services.

31. A method for executing an industrial control program utilizing a file system residing on the industrial controller, the method comprising:

invoking an execution engine residing on the industrial controller, the execution engine interpreting instructions of an industrial control program including instructions utilizing one or more file system services of the file system;

loading an industrial control program into a program memory, the industrial control program including at least one instruction employing the file system services;

loading one or more user defined routine files utilizing the file system into the program memory; and

executing the industrial control program.

32. The method of claim 31, further comprising loading a recipe file into the executing industrial control program using the file system services.

33. The method of claim 32, the recipe file residing at a remote location.

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34. The method of claim 32, further comprising loading another recipe file into the executing industrial control program in the same memory location as the recipe file.

35. The method of claim 31, further comprising logging measured data to a file and trend data to a file.

36. The method of claim 35, the measured data and trend data residing at a remote location.

37. The method of claim 31, further comprising retrieving measured data from a file and trend data from a file.

38. The method of claim 37, the measured data and trend data residing at a remote location.

39. A system having a plurality of controllers, each having a file system, the system comprising:

a local server coupled to the plurality of industrial controllers through a first network, the local server including a plurality of user defined routine files and a plurality of recipe files, each of the industrial controllers accessing the user defined routine files and the recipe files through the file system of the respective industrial controller; and

a remote computer coupled to the local server through a second network, the plurality of industrial controllers logging and retrieving measured data and trend data through the remote computer using the file system of the respective industrial controller.

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40. The system of claim 39, the remote computer being a data warehouse and the second network being the Internet.

41. The system of claim 39, further comprising a client application adapted to transmit a communication command to any of the plurality of industrial controllers for selecting a running program from a plurality of industrial control programs residing on the industrial controller, the communication command employing a file system on the industrial controller to select the running program.

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